

CLAIMS

1. A balancing vertical load device for a motor, to be used in conjunction with a vertical driving device with controlled force and positioning, comprising:

5 a motor assembly, further comprising a motor, and a load weight which, driven by said motor, performs a vertical movement; and

a sealed air pressure system, further comprising an air cylinder, a piston, gliding inside said
10 air cylinder with low friction and being connected with said load weight, an air container, storing a relatively large air volume, and an air pressure source;

wherein said sealed air pressure system balances a load of said load weight, so that precise
15 control of force and position of a vertically moving object, as if moving horizontally, is achieved.

2. The balancing vertical load device for a motor according to claim 1, wherein said motor assembly has a feeding system for vertical position and force control.

20 3. The balancing vertical load device for a motor according to claim 1, wherein a valve is inserted between said air pressure source and said air container for adjusting air pressure in said air container to modify balancing force.

25 4. The balancing vertical load device for a motor according to claim 1, wherein said motor assembly and said sealed air pressure system are mounted on a frame, with space within said frame being used for said air container.

30 5. The balancing vertical load device for a motor according to claim 1, being usable in a clean process.